



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Nicholas F. D'Antonio, John T. Wagner and Richard O. Colvin
Serial No. : 09/937,357
Filed : September 24, 2001
Title : HYPODERMIC INJECTION SYSTEM
Attorney Docket : DA7119US (#90036)

SECOND PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Preliminary to examination of the above-identified application. please amend the application as follows:

In the drawings:

Fig. 2, change the numerical designator "35" to -34—for the outer splash guard.

Fig. 6, please add a rupturable seal 56 in dotted lines, as shown in red on the attached Fig. 6.

Please replace Fig. 7 with the enclosed revised Fig. 7, which incorporates the following changes: (1) the numerical designator 7 was added to the front plate; (2) the thickness of front plate 7 was increased; (3) groove 19 was added; (4) the shape and location of cartridges 13 were modified; (5) holding surface numerical designator 31 was added; (6) numerical designator 33 was added to the splash guards around nozzles 35; (7) outer splash guards are indicated by new numerical designator 34; (8) pistons 43 were added inside cartridges 13; (9) numerical designator 59 was deleted as was its accompanying identification line; (10) pistons 75 are cross hatched and the location of the lower piston 75 was relocated as shown because there is no cartridge loaded in lower chamber 88; (11) cartridge sensor switches 79 are properly shown; (12) numerical designator 87 has

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been added to the follower arm; and (13) numerical designator 87 and the line connecting "87" and cam 81 have been deleted..

In the specification:

Page 8, line 4: change "35" to --34--.

The foregoing change is shown in the following paragraph beginning in the specification on page 7, line 20, and ending on page 8, line 5, which is written in clean form in accordance with 37 C.F.R. 1.121(b)(1)(ii):

31
Front plate 7 is shown in further detail in Figure 3. As explained earlier, front plate 7 is one of many possible devices for holding the injectate containers, such as cartridges 13. Front plate 7 includes an external front surface 23 and a rearwardly extending portion 25 into the opposite sides of which are provided grooves 19. Front plate 7 can be slid into place and grabbed by locking members 17 near the front of housing 3, which are received in grooves 19, these members 17 being withdrawn upon the actuation of trigger 11. Alternatively, locking slides or the like can be removably inserted into grooves 19 to lock front plate 7 to housing 3 (of which the front end forms a part), the front plate being ejectable from the remainder of housing 3 once the locking members 17 are removed from grooves 19. Front end 7 further has holes 29 with holding surfaces 31 for gripping the forward ends of cartridges 13 which are preferably press fit into holes 29 to hold the cartridges in place. The outer surfaces of cartridge 13 can have a high friction surface if necessary, to assure a firm grip. Guard rings 33 are provided around each of holes 29 in order to prevent the splashing of blood or of injectate as it flows through the exit nozzle of cartridge 13, particularly during the injection process. An additional splash ring 34 can also be provided, as shown in Figure 2, to add more protection against splashing.

Page 10, line 15, delete ". System" and insert --, system--; line 18, delete "59" and insert --60--; line 20, delete "extend" and insert --extends--; line 24, delete "are" and insert --is--; and continuing at:

Page 11, line 1, delete "position" and insert --portion--.

The foregoing change is shown in the following paragraph beginning in the specification on page 10, line 14, and ending on page 11, line 1, which is written in clean form in accordance with 37 C.F.R. 1.121(b)(1)(ii):

Turning next to Figure 7, which is a cut-away view of system 1 without the handle or triggers discussed earlier, system 1 has housing 3 and end plate 7. as explained earlier. To avoid undue complexity in Figure 7, the means for ejecting or catapulting front plate 7 away from the injector are not shown. Housing 3 houses a carriage 57 which has extending from it rams or plunger rods 60. A set of three springs 61 (for each of the three cartridges shown, there being six cartridges and springs in system 1) extends around the set of drive rods 63, each of which having nuts or movable spring supports 65. Supports 65 are movable along threaded rods 63 to provide a means to adjust spring preload and, therefore, injection pressure. Housing 3 has a rear wall 67, and springs 61 have their rear ends in contact with stationary wall 67. A set of holes 69 is provided in wall 67 through which rods 63 pass and are movable. A cap or shoulder 71 is provided at the rear end of rod 63 for both preventing rod 63 from entering the inside chamber of housing 3 and for cooperating with a latching assembly discussed below. The latching assembly includes a solenoid 73 for each spring (however, only two are shown) and each having pistons 75 which in their energized state are inserted in front of caps 71 as part of the latching assembly. A cartridge sensor switch 79 is closed when a cartridge is installed in the appropriate holding portion of housing 3,